



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/733,143	12/11/2003	David Meltzer	NP006	7388

20178 7590 04/07/2006

EPSON RESEARCH AND DEVELOPMENT INC
INTELLECTUAL PROPERTY DEPT
150 RIVER OAKS PARKWAY, SUITE 225
SAN JOSE, CA 95134

EXAMINER

SHINGLETON, MICHAEL B

ART UNIT	PAPER NUMBER
----------	--------------

2817

DATE MAILED: 04/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/733,143

Applicant(s)

MELTZER, DAVID

Examiner

Michael B. Shingleton

Art Unit

2817

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-104 is/are pending in the application.
- 4a) Of the above claim(s) 45 and 80-104 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 22-37, 39-44 and 52-78 is/are allowed.
- 6) ☒ Claim(s) 1, 2, 5, 7, 9, 11-16, 18-21, 38, 46-51 and 79 is/are rejected.
- 7) ☒ Claim(s) 3, 4, 6, 8, 10 and 17 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

Michael B. Shingleton
MICHAEL B. SHINGLETON
PRIMARY EXAMINER
GROUP 1 PART 1 UNIT 17

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 19-21, 38, 48-51 and 79 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Marinca* US2004/0,124,822 (*Marinca*).

Figures 4 and 5 and the relevant text of *Marinca* discloses a temperature compensation circuit and electronic circuit employing such. The temperature compensation circuit of *Marinca* having both CTAT and PTAT generators wherein the “emitter current is a combination of CTAT and PTAT currents” (See paragraph [0047]). Thus the emitter junction node forms a first summing node that sums the first and second current signals and outputs these currents through the emitter output terminal. As to the limitations that the first temperature dependent current signal generator being effective for producing a first current signal proportional to temperature when the temperature is not lower than the first activation temperature and for producing substantially no signal when the temperature is below the first activation temperature. Firstly the claims do not define what the first activation temperature is and thus this can be any temperature and there is a temperature where the proportional to temperature current generator will not generate a substantial current. The second similar limitation “said second temperature dependent signal generator produces said second current signal when temperature is not lower than said second activation temperature” has the claims not defining exact what temperature the second activation temperature is. Thus this can be any temperature. Also note that like above the second activation temperature can be so low that substantially no current flows. Again applicant has not defined these activation temperatures. Note that the combined current is a result of “ V_{be1} is a CTAT voltage, $(\Delta)V_{be}$ is a PTAT voltage” (See paragraph [0047]).

As shown in figure 1 in order to compensate for this curve the proportional to temperature curve would have to be on the "high" temperature side and the inverse to temperature curve would have to be on the low temperature side. Thus when the temperature is low the proportional current generated is low as the current is proportional to temperature. However, when the temperature is low the inverse of this would be high and thus the inverse to temperature generator generates a high current when the temperature is low. Accordingly, the inverse temperature generator is activated at a lower temperature than the proportional current generator.

Applicant adds to the independent claims that the first and second activation temperatures are selectable. The characteristics of the device's physical elements in Marinca have been selected and the first and second activation temperatures are selectable. However, alternatively selecting the characteristics of the device's physical elements to lie within the optimum range which includes the first and second activation temperatures that are dependent on the device's physical elements would be well within those of routine skill in the art. Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have selected the device's physical elements to be such that the first and second activation temperatures are selectable, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable range involves only routine skill in the art. In re Aller, 105 USPQ 233.

Claims 19-21 and 48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Scherrer 3,483,485 (Scherrer).

Figure 8 and the relevant text of Scherrer disclose a temperature compensation device and oscillator employing such having two voltage generating elements in the form of a positive coefficient resistor and negative coefficient resistors. These two voltage signals are combined at the summing node where V_2 is directed connected such that the "cup" shaped compensation output curve as illustrated in Figure 8a is obtained. In order to obtain the "cup" shaped compensation structure, one of the above mentioned resistors is effectively a low resistance at low temperatures (substantially no voltage signal there across.) and the other is a low resistance at higher temperatures and thus the two claimed activation temperature limitations are met.

Applicant adds to the independent claims that the first and second activation temperatures are selectable. The characteristics of the device's physical elements in Scherrer have been selected and the first and second activation temperatures are selectable. However, alternatively selecting the characteristics of the device's physical elements to lie within the optimum range which includes the first

Art Unit: 2817

and second activation temperatures that are dependent on the device's physical elements would be well within those of routine skill in the art. Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have selected the device's physical elements to be such that the first and second activation temperatures are selectable, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable range involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

Claims 46 and 47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Scherrer 3,4832,485 (Scherrer) in view of Toncich et al. US2002.0149434 (Tonicich).

Scherrer as applied above in the above 35 USC 102 rejection of claims 19, 20, 21 and 48 and the following. Scherrer is silent on the making of the crystal oscillator variable. Scherrer is also silent on the use of a SAW resonator.

It is well known that by providing voltage adjustable capacitances in a resonant circuit that the frequency output of the crystal oscillator can be varied. Note Figure 4 and elements like FE1 of Toncich.

Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to have provided Scherrer with at least one voltage variable adjustable capacitance element in the resonant circuit of Scherrer so as to provide a variable frequency function to the oscillator as taught by Toncich.

One of ordinary skill would have been motivated to make the substitution of an SAW (surface acoustic wave) resonator for an crystal resonator resonant circuit since the examiner takes Official Notice of the equivalence of the SAW resonator and crystal resonator for there use in tank circuits and the selection of any of these known equivalents for providing resonant component in a tank circuit would be within the level of ordinary skill in the art.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In*

Art Unit: 2817

re Vogel, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and In re Thorington, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1, 2, 5, 7, 9, 11-16 and 18 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 18-28, 47-57 and 72-81 of copending Application No. 10/733,094. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims 18-28, 47-57 and 72-81 of the '094 include all the limitations of the above indicated claims 1, 2, 5, 7, 9, 11-15 and 18 of the instant application ('143 application) plus additional limitations. Note that claims 18-28, 47-57 and 72-81 are relying on the details of the claims 1, 2, 5, 7, 9, 11-15 and 18 of the instant application and thus the claims of the '143 application are not considered patentably distinct from the above indicated claims of the '094 application (See MPEP 806.05(c)II).

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Allowable Subject Matter

Claims 22-37, 39-44, 52-78 are allowable over the prior art of record.

Claims 3, 4, 6, 8, 10, 17, 22-27, 29-34, 36, 37 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 45 and 80-104 are withdrawn.

Response to Arguments

Applicant's arguments filed 1-24-2006 have been fully considered but they are not persuasive. Applicant states that Marinca does not show a temperature compensation circuit but rather shows a temperature invariant, reference voltage circuit. In response within the circuit of Marinca is a temperature compensation circuit as noted in the previous and present office actions. Just because the circuitry can and does include other items not claimed does not mean that the prior art does not read on the claimed

invention. The claims presented by applicant are what is termed “open ended” in that they can include other items as well as that claimed. Applicant goes on to cite a Figure 10.6 illustration from a “text book” by Thomas Lee. This shows the PTAT and the V_{be} CTAT compensation curves and how these are combined. The basic structure of that claimed like in claim 19 is that there is a signal proportional to temperature and a signal inversely proportional to temperature and these two signals are combined. This seems to be what is occurring in the Lee reference above for it appears that when the PTAT and CTAT signals are combined the resulting output is a nice flat temperature independent “curve”. Applicant’s point is not clear.

Applicant adds the limitation “selectable” first activation temperature and “selectable” second activation temperature to the claims and remarks that “this limitation precludes the natural temperature at which current flow naturally begins since this natural temperature is not selectable, but rather is an inherent characteristic of the device’s physical elements”. The examiner does not see any different structure recited to overcome the rejection based on the prior art i.e. Marinca or Scherrer. Applicant admits that the device’s physical elements determine this “inherent characteristic” and since the physical elements are selected the activation temperatures are considered “selectable”. The claims do not recite that the first and second activation temperatures are variable by some sort of means. The examiner must give the broadest reasonable interpretation to the claims consistent with the specification.

It is agreed that the Figure 1 of the Marinca reference discloses typical TlnT temperature deviation and as recognized by applicant on page 26 of the remarks “Marinca’s invention counteract(s) the logarithmic effect of a bandgap reference voltage source by providing a circuit that compensates for the TlnT term.” Note that page 21 of applicant’s remarks applicant states that “Marinca does not show a temperature compensation circuit” yet page 26 of applicant states that Marinca includes a “circuit that compensates”. This provides further support for the examiner’s position that the circuit of Marinca includes a compensation circuit. It is clear that the circuit of Marinca does in fact compensate for the curve shown as Figure 1 in Marinca. Applicant also states “Marinca does not teach or suggest two temperature dependent signal generator(s)”. There is a means that provides the CTAT and PTAT currents and this means can be called two signal generators. It appears that applicant is reading too much into the claimed invention for the claimed invention does not call for two independent temperature dependent signal generators. However, it is possible that Marinca does include two independent signal generators but since applicant has not argued this and the claims are not limited to this, the examiner has not reviewed the Marinca reference for this feature.

Applicant also states that providing temperature offset is required in the present invention. Applicant does not refer to which claims this is suppose to be present. The examiner has reviewed the independent claim 19 and does not see this limitation. Furthermore, unless the offset is specifically recited the offset could have any value including zero.

Applicant is also referred to paragraph [0047] of Marınca for here it states that the emitter current is a combination or two signals or currents. In order for there to be a combination, at least two things must be summed, i.e. combined. Accordingly applicant's arguments are not persuasive.


While applicant originally submitted claim 37 as being withdrawn to the non-elected invention, the examiner upon review respectfully disagreed and did object to this claim as the previous Office action made clear. The examiner thanks applicant for finding that office action is being clear as to the objection of claim 37.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael B. Shingleton whose telephone number is (571) 272-1770.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Pascal, can be reached on (571)272-1769. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306 and after July 15, 2005 the fax number will be 571-273-8300. Note that old fax number (703-872-9306) will be service until September 15, 2005.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MBS
April 01, 2006


Michael B Shingleton
Primary Examiner
Group Art Unit 2817